

Fred T. Gerbig, PE

Experience:

Cleanroom experience began in 1967 with a prime contract for a VLF facility that is still in use today. Since that time, the scope of cleanroom activity has expanded to include design, design/build, certification, and consulting.

Fred completed a research project in 1991 for ASHRAE in conjunction with Iowa State University and Research Triangle Institute for comparing laminar flow computer models to full size system.

Fred is a registered professional engineer in Minnesota, Wisconsin, and California.

Education:

Bachelor of Science in Mechanical Engineering

Bachelor of Science in Electrical Engineering both from Iowa State University

Short courses include:

Contamination Control (University of Minnesota)

Piping Systems (University of Minnesota)

Acoustics in Air Handling Systems (Bolt Boranek and Newman)

Specification Writing (Construction Specification Institute)

Electrical Engineering (Hughes Institute)

Digital Temperature Control (ASHRAE)

Hydronics Systems Design (ASHRAE)

Professional Affiliations & Awards

National Environmental Balancing Bureau: Supervisor for field testing.

Registered Engineer in Minnesota, California, Wisconsin,

Secretary, IES subcommittee RP-50 for updating Federal Standard 209B to 209D

Secretary, IES, subcommittee RP-006 "Recommended Practices for Testing Cleanrooms"

Awarded the 1986 "James R. Mildon Award" for outstanding contributions to the Institute of Environmental Sciences Contamination Control Division

Project Related Experience

Some experience includes the following projects:

Medical Devices

Medtronic Inc.: Several design-build cleanrooms for medical device assembly.

Beckman Coulter, Chaska, MN: Modular cleanrooms.

ATS, Inc., (Heart Valve Assembly) Design-build heart valve assembly.

3M Company: Numerous cleanroom projects.

St. Jude Medical, Puerto Rico and St. Paul, MN: Modular Cleanroom wall systems.

Boston Scientific, Inc., Maple Grove, MN and Indiana: 55 cleanroom, pass through, and wall contracts since 2005.

Enpath Medical, Inc., Plymouth, MN Cleanroom wall and pass through systems

Specialty Coatings, Inc. Clear Lake, WI; Indianapolis, IN: Modular cleanrooms.

Transoma Medical, Inc. Arden Hills, MN: Modular Cleanrooms

ProMed, Inc. Porto Rico: modular cleanroom

EV3 Medical, Inc. St. Paul, MN modular cleanrooms

World Wide Dispensers, Lester Prairie, MN: Conversion of factory space to Class 10,000 cleanroom.

Gyrus Medical, Inc., Maple Grove, MN: Cleanroom wall system with pass throughs
Pioneer Surgical, Marquette, MI: Modular cleanrooms.

Pharmaceutical

Helix Biocore, Inc.: Design-build of a mammalian cell facility.

Protein Design Laboratories, Inc.: Design-build of cell scale-up facility.

Solvay Pharmaceuticals.: Reverse engineering of facility for FDA compliance.

Aerospace

McDonnell Douglas Corporation, Huntington Beach, CA: Design-build facility for space station assembly. (McDonnell-Douglas eventually lost contract to Boeing.)

Fairchild Space, Germantown, MD: Design-build for a cross-flow cleanroom for satellite checkout.

Semiconductors

Honeywell, SSEC, Plymouth, MN

- Honeywell's first laminar flow cleanroom for semiconductor in 1967. Operating today at Class ONE. Built other Class 10 rooms in the 70s and 80s and 90s.

IBM, Fishkill, NY

- IBM's first laminar flow facility for semi-conductors in 1981. 14,000 sq ft of laminar flow Class 10.

VTC, Inc., Bloomington, MN

- Modifications to facility 1990-1996. Gerbig Engineering Company acted as design company for cleanroom modifications.

Lawrence Berkeley Laboratories, Berkeley, CA

- Research facility for semi-conductor type optical systems.

Spectracom, Inc, White Bear Lake, MN 2000

- Design/build facility for semiconductor related processes. (Laser amplifier for communications industry.) About 10,000 sq ft. Gerbig engineering was the designer and cleanroom contractor.

ADC Telecommunications, Shoreview, MN 2003

- 55,000 sq ft facility including semiconductor processes, MOCVD. Gerbig Engineering acted as cleanroom design/build contractor under Krause-Anderson general contractors. Gerbig Engineering designed HVAC systems and all cleanrooms.

Entegris Inc. Chaska, MN

- Multiple cleanrooms for semiconductor related products.

ATMI, Bloomington, MN 2005

- 12,000 square feet Class 10-10000 cleanrooms for semiconductor related products.

Infinite Graphics, Minneapolis, MN

- Special Masks for flat panel display

Electronics

3M Company, St. Paul, MN: Modular cleanrooms, constant temperature rooms, testing and validation contracts.

HEI, Inc., Victoria, MN: Modular cleanrooms

Cymbet Inc, Elk River, MN: Modular cleanrooms

Hutchinson Technology, Inc, Hutchinson, MN; Eau Clair, WI: Modular cleanrooms and large constant temperature room.

Other:

Borg-Warner, NY: Several modular cleanrooms for manufacturing automotive devices.

3M Company: explosion proof HEPA filter system on a cart for transferring product.

California Institute of Technology: (10) Movable Class 100 softwall systems for gravitational wave investigations.

Articles & Papers

1982-Paper for Institute of Environmental Sciences, Atlanta, Georgia,
"Certification of Cleanrooms"

1982-Paper for ASHRAE, Cincinnati, Ohio,
"Cleanrooms for the Microelectronics Industry"

1982-Article for Microelectronics Manufacturing and Test magazine,
"Cleanrooms for the Electronics Industry"

1984-Article for Microcontamination magazine,
"Energy Consumption in VLF Cleanrooms"

1985-Article for Microcontamination magazine,
"Testing of Cleanrooms"

1985-Article for Microcontamination magazine,
"Aerosol Distributions from a Laskin Nozzle"

1985-Article for Medical Device and Diagnostic Industry magazine
"Recommended Practice for Testing Cleanrooms"

1992-Article for Electrical Design and Manufacturing,
"Determining the Right Cleanroom for Your Company"

1994-Article for Microcontamination magazine,
"Determining the Right Cleanroom for Medical Device Manufacturing"

Patents

Mr. Gerbig hold one patent for a filter holding mechanism that is still in use today.